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Physical impairments blur the association between physical activity and loneliness: A longitudinal study

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Background

- Insufficient physical activity (PA) and loneliness are both important determinants of physical and mental health
- Among single older adults insufficient PA and loneliness are highly prevalent
- This study explores the association between PA, loneliness and the presence of physical impairments caused by chronic diseases among participants of the Active Plus65 intervention

Active Plus65 Intervention

- Computer tailored healthy ageing intervention
- Aims to increase PA and to stimulate active citizenship in order to decrease loneliness
- Specific tailoring for physical impairments caused by chronic diseases
- Two self-report questionnaires
- Tailored advice on three occasions
- Online or printed delivery mode

Methods

- Longitudinal intervention study ($N = 548$; mean age = 76 ± 8)
- Assessments at baseline (T0), after three months (T1), and follow up at six months (T2)
- Multilevel Regression Analyses
- Predictor variables: weekly minutes of moderate to vigorous PA (MVPA) and the presence of physical impairments
- Outcome variable: loneliness

Results (1)

On all measurement time points, participants with a physical impairment have a lower degree of MVPA and a higher degree of loneliness than those who are not impaired (figure 1).

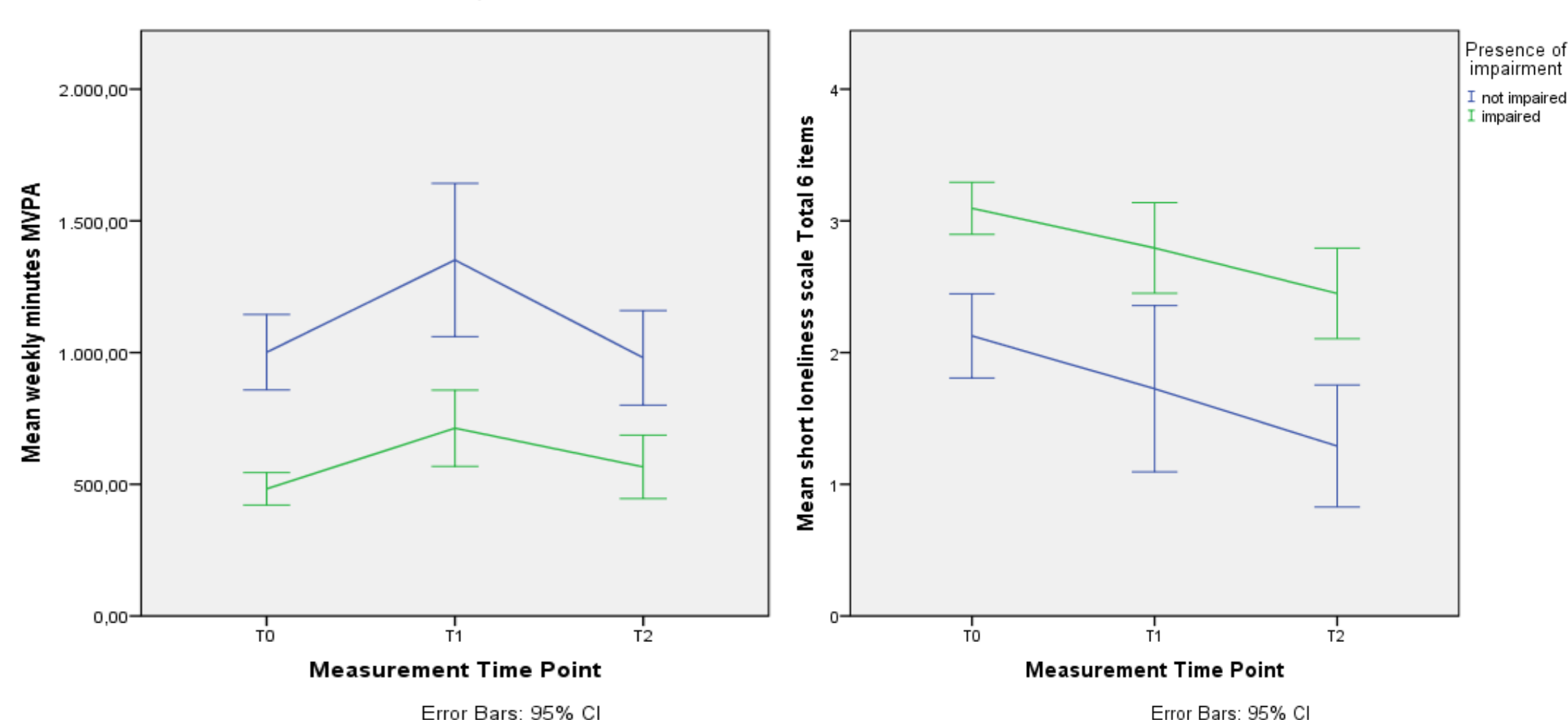


Figure 1. Development over time of both PA and loneliness for the physically impaired and not impaired.

Results (2)

Improvements in MVPA were associated with decreases in loneliness ($B = -0.09$; $SE = 0.04$; $p = 0.020$); this association however became non-significant when the presence of physical impairments was included in the analyses ($p = 0.824$). Having physical impairments in itself was positively associated with loneliness ($B = 0.51$; $SE = 0.10$; $p < 0.001$) (Table 1).

Table 1: Hierarchical multilevel analyses into the T0-T2 relation between physical activity and physical impairments (predictors) and loneliness (outcome variable)

	B	SE	p
Model 1 (n = 548)			
Minutes of MVPA	-0.09	0.04	0.020
Model 2 (n = 547)			
Minutes of MVPA	-0.01	0.06	0.824
Presence of impairment ^a	0.51	0.10	<0.001
Measurement time point	-0.15	0.05	0.001
Model 3 (n = 546)			
Minutes of MVPA	-0.02	0.06	0.767
Presence of impairment ^a	0.52	0.10	<0.001
Measurement time point	-0.15	0.05	<0.001
Gender	-0.04	0.08	0.643
Age	-0.01	0.01	0.376

^a Impaired coded as 1, not impaired coded as 0

Conclusions:

- Participants of Active Plus65 demonstrated an increase in PA and a decrease in loneliness, making it a relevant intervention for the target-population
- The significant negative association found between PA and loneliness was disrupted when the presence of physical impairments was included in the analyses
- The presence of physical impairments was positively associated with loneliness
- The in previous research often found association between PA and loneliness may have other working mechanisms than posited: it may be mainly the presence of physical impairments that dictates loneliness, and less so PA
- For long term improvements in PA and loneliness, developers of interventions should address the presence of physical impairments elaborately

Previous publications on Active Plus65:

- Boekhout, J. M., Berendsen, B. A., Peels, D. A., Bolman, C., & Lechner, L. (2018). Evaluation of a Computer-Tailored Healthy Ageing Intervention to Promote Physical Activity among Single Older Adults with a Chronic Disease. *International Journal of Environmental Research and Public Health*, 15(2), 346.
- Boekhout, J. M., Peels, D. A., Berendsen, B. A., Bolman, C. A. W., & Lechner, L. (2017). An eHealth Intervention to Promote Physical Activity and Social Network of Single, Chronically Impaired Older Adults: Adaptation of an Existing Intervention Using Intervention Mapping. *JMIR Res Protoc*, 6(11), e230. doi: 10.2196/resprot.8093